We claim:

1. A communications system, comprising:

a base station and mobile terminals;

said base station having an air interface for implementing wireless, first partial connections to said mobile terminals and a network interface to a communication network configured to establish second partial connections to further terminals, wherein voice data to be transmitted in each case are transmitted within data packets to be transmitted asynchronously for the first and second partial connections;

the individual data packets each containing an address information item unambiguously specifying one of the mobile terminals or further terminals in the communication network as a transmission destination and directing the data packets to the respective transmission destination within the communication network;

said base station including a router configured to allocate data packets arriving in existing first or second partial connections to second or first partial connections in dependence on the address information item contained in each data packet; and

said mobile terminals each having a voice processing device configured for at least one of compressing voice data to be transmitted to said base station and decompressing compressed voice data transmitted to the respective mobile terminal.

2. The communications system according to claim 1, wherein said voice processing device is a voice decompression device for decompressing voice data received by the respective said mobile terminal.

3. The communications system according to claim 1, wherein said voice processing device is a voice compression device for compressing voice data to be transmitted from the respective said mobile terminal to said base station.

4. The communications system according to claim 1, wherein said voice processing device is a voice compression and decompression device for compressing voice data to be transmitted from the respective said mobile terminal to said base station, and for decompressing voice data received by the respective said mobile terminal.

5. The communications system according to claim 1, wherein the communication network is a data network for connecting data processing systems.

6. The communications system according to claim 1, wherein said base station is configured to implement the air interface in accordance with the ETSI standard DECT.

7. The communications system according to claim 1, wherein said base station is configured to implement the air interface in accordance with the ETSI UMTS definition.

8. The communications system according to claim 1, wherein said network interface is configured for connections to a switching system in an ISDN network.

9. The communications system according to claim 1, which further comprises a detector device contained in said base station for checking the data packets with respect to quasi-real-time requirements of applications allocated to the data packets via priority information contained in individual data packets; and a prioritizing device contained in said base station and configured to initiate a preferred transmission of data packets allocated to quasi-real-time applications.

10. The communications system according to claim 1, wherein said base station further comprises one of a voice compression device for compressing voice data to be transmitted to a respective said mobile terminal and a voice decompression

device for decompressing compressed voice data received from a mobile terminal.